

TWO NEW SPECIES FROM THE CHIHUAHUAN DESERT

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Abstract. - Two new species of Boraginaceae are described from the Chihuahuan Desert in northern Mexico, Cynoglossum erectum, and Omphalodes chiangii. Each are described and compared with their closest relatives.

Cynoglossum erectum Higgins sp. nov.

Herba biennis erecta 4--6 dm alta; caule solitario, villosu-tomentoso; folia basi oblanceolata ad oblonga, 5--8 (-10) cm longa, 0.8--1.8 cm lata, villosa-tomentosa; petiolis 5--8 cm longis; folia caulina lanceolata ad oblonga, acuta, sessiles; racemi compluries ad multi, simplices vel raro rami, parce bracteati vel ebracteati, multi elongati in fructi; pedicelli 6--17 mm longi; sepals ovata-oblonga, obtusa, sub anthesi 3--5 mm longa sub fructibus 5--8 (-10) mm longa, strigosa; corolla azures vel alba, tubo 1.5--2 mm longo, limbo 5--6.5 mm lato, non nisi leviter excedens calycis; nuculae 5 mm longae, dorsum convexum, non marginatum; sulcus magnus; stylus curtus, subaequus ad nuculae.

Biennial, villous-tomentose throughout; stem solitary, erect, 4--6 dm tall; lower leaves oblanceolate to oblong 5--8 (-10) cm long, 0.8--1.8 cm broad, villous-tomentose, the petioles 5--8 cm long; upper leaves lanceolate to oblong, acute, sessile or the uppermost clasping; racemes several to many, simple or rarely branched, sparingly bracted or bractless, much elongating in fruit; pedicels 6--17 mm long; calyx segments ovate-oblong, obtuse or rounded 5--8 (-10) mm long in fruit; corolla blue or white, the tube 1.5--2 mm long, the limb 5--6.5 mm broad, only slightly exceeding the calyx or sometimes included; nutlets ascending on the pyramidal gynobase, about 5 mm long, back convex, not margined, attached near the apical end by a large scar; style short subequal or only slightly longer than nutlets.

TYPE. Mexico: Zacatecas, 10 km west northwest of Tecolotes, on road to Coapa. Latitude 24°39'N longitude 102°02'W; altitude 1800 meters; 17 June 1972. F. Chiang, T. Wendt and M. C. Johnston 7890. Holotype deposited at (TEX). Isotype at (WTS).

Distribution. Apparently confined to northern Zacatecas and extreme southern Coahuila. Growing on fine textured or gravelly calcareous adobe, and associated with Larrea, Flourensia, Prosopis, Artemisia and Yucca. Flowering from May to September.

Specimens examined. Zacatecas: 7 mi NW of Tecolotes, 20.9 road miles w. of Cedras, 24°41'N, 102°03'W, 5900 feet, 2 September 1971. James Henrickson 6356a (TEX). 10 km northwest of La Ventura. 1 km w. of Rancho Campamento Hildago. 18 June 1972. F. Chiang, T. Wendt and M. C. Johnston 7951, 7952 (TEX, WTS).

Cynoglossum erectum is apparently most closely related to C. officinale L. a more northerly ranging species of the United States. The new species differs from C. officinale by its convex nutlets which lack the marginal ridge, longer calyces, and the longer more laxly flowered racemes.

Omphalodes chiangii Higgins sp. nov.

Herba perennis; caulis 2--5 dm longus, ascendens vel subprocumbens, glaber vel sparse puberulus; folia ambitu deltoidea vel cordata, apice acuta ad acuminata, basi cordata, 1--2 cm longa, 0.7--14 mm lata, uniformiter et dense adpressa setosa et strigosa in superficiebus ambabus folii, venis non nisi leviter evidentiibus subter; petioli 0.6--2 cm longi; pedicellis lateralis, 1--2 cm longis in fructis, flexuosis effusis, subtentis ad foliosis bracteis; calycis lacinae anguste lanceolatis, 2--3 mm longis sub anthesis, fructiferis accrescentibus 3--4 mm longis, strigosis; corolla alba, tubo ca. 2 mm longo, limbo 5--7 mm lato; nuculae 2--4, ca. 3 mm latae, depressae-pyramidalibus, orbicularis; nuculae ala valde incurvo ad formo integero umbilico.

Short-lived perennial with decumbent or trailing nearly glabrous stems to 5 dm long; leaves deltoid-cordate, the apex acute to short acuminate, the base cordate, 1--2 cm long, 0.7--14 mm broad, with short erect or decumbent hairs equally abundant on both surfaces, veins only slightly evident below; petioles 0.6--2 cm long; pedicels lateral, 1--2 cm long in fruit, flexuous spreading, subtended by a leafy bract. Calyx lobes narrowly lanceolate, 2--3 mm long in anthesis, in fruit becoming 3--4 mm long, strigose hairy; corolla white, the tube about 2 mm long, the limb 5--7 mm broad; Nutlets 2--4, depressed pyramidal, orbicular, about 3 mm broad, wing of nutlets strongly incurved to form an entire umbilicus.

TYPE. Mexico: Coahuila, Canon de Centinela just south and southwest of pico de centinela, Sierra del Jardin. Latitude $29^{\circ}04'--20^{\circ}04'30''N$ longitude $102^{\circ}46'--102^{\circ}47'30''W$ altitude 1600-2225 meters. 31 July 1973. M. C. Johnston, T. Wendt, F. Chaing and D. Riskind 11,975b Holotype deposited at (TEX). Isotype at (WTS).

Distribution. Apparently confined to the type locality in the Sierra del Jardin. Growing on gravelly, grassy and sandy soils derived from igneous rocks. Associated with species of Quercus, Pinus, Pseudotsuga, Ceanothus and Cercocarpus. Flowering from June to August.

Omphalodes chaingii is a rare and local species of northern Coahuila and known only from the type collection which contained two sheets both with flowers and fruits well represented. It is easily separated from all other North American Omphalodes by the entire strongly incurved wing of the nutlets. The Pico de Centinela is near $29^{\circ}8'N$, $102^{\circ}38'W$. It is the northern end and the highest peak of the Sierra Maderas del Carmen, an igneous mass nearly 10,000 feet high with extensive fir, douglas-fir, and pine forests.

The species is named in honor of Fernando Chiang-Cabrera, born March 31, 1943. He is an up and coming Mexican botanist who at the present time is working on the genus Lycium at the University of Texas, Austin.